



BACKGROUND OF THE INVENTION

Cables are utilized as a conduit or carrier for electric current and typically consist of multiple individually insulated conductors contained in an outer casing consisting of plastic, rubber, etc., referred to as a sheath. Cable sheath removal is a common and necessary task that must be performed to expose the underlying individual conductor(s) in a cable. Typically, removal of the outer cable sheath is accomplished by cutting or tearing the sheath from the cable assembly. Although various models of cable sheath removal tools exist, it is believed that among the many unique aspects of this particular design, the following ones are the most distinctive.

BRIEF SUMMARY OF THE INVENTION

- Uses a readily available standard utility knife blade, unlike other existing cable outer sheath cutting tools.
- Provides a unique method of fine cutting blade adjustment
- Accommodates spare blade storage in an allocated space unlike other existing cable outer sheath cutting tools.
- Provides a unique cable guide mechanism.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

Figure 1-

Isometric Detailed Exploded View, Roller & Slide Mechanism

Figure 2-

Isometric Detailed Exploded View, Main Body, Blades & Cover

Figure 3—

Isometric Detailed Exploded View, Blade Support & Adjustment Mechanism

Figure 4—

Isometric Assembled View

Figure 5—

Top View, Blade Adjustment Mechanism, Extended & Retracted View

Figure 6-

Top View, Slide Mechanism Retracted Position

Figure 7-

Top View, Slide Mechanism Extended Position

Figure 8-

Front View, Slide Mechanism, Extended & Retracted Position

DETAILED DESCRIPTION OF THE INVENTION

The Cable Ripper is a hand held tool that is designed to slit the outer sheath of a cable for easy removal. The tool is designed to be ergonomic and ambidextrous. In normal use, the cutting adjustment can be performed single handed while holding the Cable Ripper, and with the index finger. The tool is designed to utilize readily available standardized utility knife blades with easy blade replacement in mind. Removal of a side cover on the tool allows access to the blade compartment and blade adjustment mechanism. In addition, the blade compartment accommodates spare blade storage. The tool has been designed to be lightweight and is constructed primarily of durable plastic and aluminum components and stainless steel hardware, giving it rust resistant properties. The Cable Ripper is also provided with a D-Ring at the end of the handle that is utilized to hang the tool from a hook or tool belt clip.

The Cable Ripper is comprised of the following described and depicted components as represented in the designated figures.

Figure 1

- Item 1 – Slide*
- Item 2 – Stepped Thumb Grip*
- Item 3 – Cable Guide Roller*
- Item 4 – Guide Roller Support Pin*
- Item 5 – Roller Pin C-Clip*
- Item 6 – Guide Roller Bearing*
- Item 7 – Thumb Grip Attachment Screw*

The Stepped Thumb Grip (2) is attached to the Slide (1) with the Thumb Grip Attachment Screw(s) (7). The Guide Roller Bearing(s) (6) are pressed into each side of the Cable Guide Roller (3). The Cable Guide Roller (3) is supported in the Slide (3) by the Guide Roller Support

Pin (4). The Guide Roller Support Pin (4) is captured in the Slide (3) by the Roller Pin C-Clip(s) (5).

Figure 2

- Item 8 – Main Housing*
- Item 9 – Spare Utility Blade*
- Item 10 – Cutting Utility Blade*
- Item 11 – Housing Cover*
- Item 12 – Cover Attachment Screw*

The Spare Utility Blade (9) is contained in the Main Housing (8) storage space. The Cutting Utility Blade (10) is contained in the Main Housing (8). The Housing Cover (11) is attached to the Main Housing (8) via the Cover Attachment Screw(s) (12).

Figure 3

- Item 8 – Main Housing*
- Item 13 – D-Ring*
- Item 14 – Brass Tipped Set Screw*
- Item 15 – Blade Adjustment Tab*
- Item 16 – Adjustment Tab Support Pin*
- Item 17 – Blade Connection Pin*
- Item 18 – Adjustment Pin-Connection Pin*
- Item 19 – Threaded Blade Adjustment Pin*
- Item 20 – Wear Washer*
- Item 21 – Adjustment Tension Spring*
- Item 22 – Blade Adjustment Roller*
- Item 23 – Slide Support Pin*

The D-Ring (13) is attached to the end of the Main Housing (8). The Brass Tipped Set Screw(s) (14) are threaded into the Main Housing (8). The Blade Adjustment Tab (15) is supported in the Main Housing (8) via the Adjustment Tab Support Pin (16). The Blade Connection Pin (17) is pressed into the Blade Adjustment Tab (15). The Adjustment Pin-Connection Pin (18) is pressed into the Blade Adjustment Tab (15). The Threaded Blade Adjustment Pin (19) is supported in the Main Housing (8) via the Blade Adjustment Roller (22). The Wear Washer(s) (20) and Adjustment Tension Spring (21) are supported in the Main Housing (8) via the Threaded Blade Adjustment Pin (19). The Slide Support Pin (23) is pressed into the Main Housing (8).

Figure 4

This figure depicts the assembled tool. The Stepped Thumb Grip (2) is attached to the Slide (1). The Cable Guide Roller (3) is supported by the Slide (1). The Slide (1) is supported via the Main Housing (8) via the Slide Support Pin (23). The Housing Cover (11) is attached to the Main Housing (8). The Blade Adjustment Roller (22) is supported in the Main Housing (8).

Figure 5

This figure demonstrates the collective movement of the Blade Adjustment Mechanism. The Cutting Utility Blade (10) is extended and retracted in the following described manner: The externally knurled and internally threaded Blade Adjustment Roller (22) can be turned clockwise or counterclockwise. This movement will cause the Threaded Blade Adjustment Pin (19) to extend or retract (depending on the direction that the Blade Adjustment Roller (22) is turned). The Threaded Blade Adjustment Pin (19) is connected to the Blade Adjustment Tab (15) via the Adjustment Pin-Connection Pin (18). The Blade Adjustment Tab (15) is supported via the Adjustment Tab Support Pin (16) that allows the Blade Adjustment Tab (15) to pivot. This pivot action and the fact that the Cutting Utility Blade (10) is supported via the Blade Connection Pin (17) allows the Cutting Utility Blade (10) to be extended and retracted in a finely adjusted manner.

The Brass Tipped Set Screw(s) (14) cause the Cutting Utility Blade (10) to be justified to one side (eliminating excessive Cutting Utility Blade (10) side gap and possible rocking).

Figure 6 & 7

These figures depict the Slide (1) mechanism in an extended and retracted position. The Slide (1) mechanism cups the Main Housing (8) and is supported via the Slide Support Pin (23). As depicted in figure 6, pushing the Stepped Thumb Grip (2) causes the Slide (1) to be extended and is limited by the Slide Support Pin (23).

As depicted in figure 7, pulling the Stepped Thumb Grip (2) causes the Slide (1) to be retracted, this action is limited by the Slide Support Pin (23).

Figure 8

This figure depicts the front view extended and retracted action of the Slide mechanism as well as the Cutting Utility Blade. It also shows the D-Ring installed on the Main Housing.

OPERATIONAL DESCRIPTION

The Cable Ripper is used in the following manner:

The Main Housing (8) is grasped in either the left or right hand in a way that the thumb rests on the Stepped Thumb Actuator (2), thereby enabling the thumb to push and pull the Slide (1) upward and downward. During normal use, the index finger should rest on the knurled Blade Adjustment Roller (22), thereby enabling the index finger to turn the Blade Adjustment Roller (22) clockwise and counterclockwise. This action will cause the Threaded Blade Adjustment Pin (19) to push or pull the Blade Adjustment Tab (15) and in turn extend or retract the Cutting Utility Blade (10). The Stepped Thumb Actuator (2) is pushed until the Slide (1) is moved to a fully extended position.

The cable is then inserted through the Slide (1) opening, under the Cable Guide Roller (3) from the index finger side towards the thumb side to the desired sheath removal length. The Slide (1)

is then retracted with the thumb until the Cable Roller Guide (3) applies pressure on the cable sheath. This pressure is maintained for the remainder of the operation. The cable is then pulled out of the Slide (1) opening toward the index finger side of the tool. The cut sheath can then be removed.